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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,221	09/26/2003	Frank E. Towsley	MSH-00262	2864

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EXAMINER	
GREENE, JASON M	
ART UNIT	**PAPER NUMBER**
1724	

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/672,221	TOWSLEY, FRANK E.	
	Examiner	Art Unit	
	Jason M. Greene	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3 and 5-8* is/are rejected.

7)☒ Claim(s) *2,4 and 9-11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/26/03;3/4/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3 and 5-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishii et al. '664.

With regard to claims 1 and 3, Ishii et al. '664 discloses a filter for removing soot from the exhaust gases from a diesel engine comprising a flow-through filter element (17) comprising a porous metal substrate formed by electrodepositing a metal in the interstitial spaces of a substantially electrically nonconductive foam of a material and then substantially removing the material of the foam to produce the porous metal substrate, and a hollow body (case 12) comprising an inlet port (13) and an outlet port (14), the filter element being positioned in and sealed to the hollow body so that diesel exhaust gases directed into the inlet port of the hollow body flow through the porous

meal substrate from the inlet side of the porous metal substrate to the outlet side of the porous metal substrate and then out the outlet port of the hollow body, the bulk density of the porous metal substrate being 5% of the density of the metal of the substrate (see col. 7, lines 38-42), the average pore diameter of the pores at the inlet side of the porous metal substrate being larger than 1 μm, the area of the pores of the inlet side of the porous metal substrate being greater than 35% the area of the inlet side of the porous metal substrate in Figs. 4A and 4B and col. 3, line 11 to col. 7, line 44.

While Ishii et al. '664 does not explicitly recite the average pore diameter or porosity at the inlet side of the porous metal substrate, the porous metal substrate will inherently exhibit the recited properties. In col. 3, lines 11-32, Ishii et al. teaches the porous metal substrate having an average pore diameter of 0.1-1 mm (100-1000 μm). Since the recited average pore diameter is much greater than 1 μm, the porous metal substrate will exhibit an average pore diameter much greater than 1 μm across its entire radial cross-section, including its inlet side. Furthermore, Ishii et al. '664 explicitly teaches against the average diameter being less than 100 μm since such a pore structure will result in unacceptable back pressure on the diesel engine. Similarly, in col. 7, lines 38-42, Ishii et al. '664 teaches the volumetric ratio of the porous metal being 5% (i.e. a porosity of 95%). Since the recited bulk area of the pores (i.e. the porosity) is much greater than 35%, the porous metal substrate will exhibit a porosity much greater than 35% across its entire radial cross-section, including its inlet side. Additionally, while Ishii et al. '664 does not teach the porous metal substrate being formed by electrodepositing the metal in the interstitial spaces of a packed array of substantially

electrically nonconductive particles, the Examiner notes that Ishii et al. '664 still anticipates the filter of claims 1 and 3 since the porous metal substrate of Ishii et al. '664 formed by electrodepositing the metal on a foam exhibits the claimed pore structure. Applicants are reminded that product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) See MPEP 2113 [R-1].

With regard to claims 5-8, Ishii et al. '664 discloses the metal being an alloy comprising nickel (a Ni-Cr alloy) in col. 7, lines 24-26.

Allowable Subject Matter

3. Claims 2, 4 and 9-11 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claims 2, 4 and 9-11, Ishii et al. '664 discloses the average pore diameter of the porous metal substrate being 100 μm in col. 3, lines 11-32. However, as noted above, the reference teaches away from reducing the average pore diameter below 100 μm and does not explicitly recite the average pore diameters at the inlet or outlet sides of the porous metal substrate.

Saito et al. '802 teaches a similar porous metal substrate having an average pore diameter of 5 μm or more in Fig. 1 and col. 2, lines 48-51. However, the reference is silent as to the porosity of the porous metal substrate and the average pore diameters at the inlet and outlet sides of the porous metal substrate.

With regard to claims 2 and 4, the prior art made of record does not teach or fairly suggest the filter of claim 1 wherein the average pore diameter of the pores at the inlet side of the porous metal substrate is in the range of 5 to 20 μm.

With regard to claims 9-11, the prior art made of record does not teach or fairly suggest the filter of claim 1 wherein the average pore diameter of the pores at the outlet side of the porous metal substrate is less than 30 μm or the filter of claims 4 or 8 wherein the average pore diameter of the pores at the outlet side of the porous metal substrate is less than 10 μm.

Specifically, since Ishii et al. '664 explicitly teaches away from reducing the average pore size of the porous metal substrate below 100 μm, one of ordinary skill in

the art would not have been motivated to reduce the average pore size across any portion of the radial cross-section, including the inlet and outlet sides, to a value less than 100 μm since doing so would result in unacceptable backpressure on the engine.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Ishii et al. '757, Saito et al. '688, Hepburn et al., Maeda et al., Matsunuma et al., Pierotti et al., Minnear et al., Tuchinskiy et al., Winkler, and Ban et al. references disclose similar filters.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason M. Greene
Examiner
Art Unit 1724

7/24/05

jmg
July 24, 2005